



CJC® Application Study

CUSTOMER

Vessel: Tug boat „BUGSIER-4“
Owner: BUGSIER-, REEDEREI- UND BERGUNGSGESELLSCHAFT MBH & CO. KG

SYSTEM

Thruster: Wärtsila LCT CS225-S/WN-K
1,600 kW at 1,000 rpm
Gear oil: Shell Omala S2 GX 150,
Classification: CLP DIN 51517-3
Oil volume: 1,500 Litre
Runtime, engine: approx. 17,315 RHs at test start,
approx. 1,548 RHs per year

CHALLENGE

Continuous water ingress in the gear oil system leads to a water content of 1,080 ppm (> 0.1 %) already after only 66 running hours after the last oil change. After further 179 running hours, the water content in the oil increased to 2,033 ppm (> 0.2 %). The shipping company searched for a system that can minimize the water content efficient and reliable within the shortest time and permanently stable the water content at a low limit, even when a huge amount of water enters the oil system.

TEST

For test purposes, a CJC® Desorber D5 with CJC® Oil-Care System 15/25 was installed. The pump-motor-unit ensures the continuous drying, fine filtration and care of the gear oil in an off-line circuit (24/7/365). The system removes water, free, dissolved and emulsified, as well as particles and oil degradation products with extremely high efficiency.

Water desorption capacity: > 150 ml/h
Dirt holding capacity: approx. 1,1 kg
Filter degree: 3 µm absolute, 1 µm nominal
Filter material: 100 % renewable raw material

RESULT

The CJC® Desorber D5 has lowered the water content from 903 ppm (0.09 %) to 109 ppm (0.01 %). The laboratory of the oil manufacturer (Shell LubeAnalyst) analyzed the zero sample and the two months later taken oil sample. The CJC® System removes free water (2-phases) and emulsified water (finely divided in oil) as well as dissolved water (not visible) from the oil. Important, because pressure and temperature changes lead to the release of dissolved water resulting in the same harmful impact on components and oil as emulsified and free water. **To keep the water out of the oil system is essential** to avoid abnormal wear, corrosion, cavitation, reduced lubricity, and accelerated oil degradation.



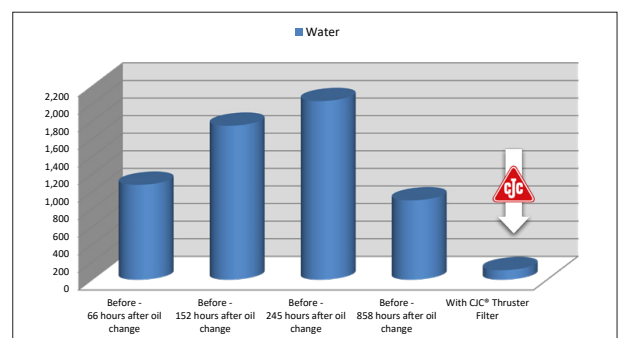
Tug boat "Bugsier-4"



Photo, left: CJC® Desorber D5 with CJC® Oil-Care System 15/25 installed for cleaning the gear oil of the thruster.

OIL SAMPLES

	BEFORE test start				WITH CJC® Oil Care
Running hours since last oil change	66	152	245	858	1,098
Water content (ppm), Karl-Fischer-Method	1,080	1,752	2,033	903	109
Viscosity [cSt] at 40 °C	155.1	153.6	155	154.5	154.5



COMMENT

Technical Superintendent "BUGSIER-4":

"With the installation of the CJC Desorber D5 with an integrated oil-care system it was finally possible to dry the gear oil satisfactorily. Without CJC we should have changed 1,500 litres of oil within the next time. Due to the avoided oil change, we saved 4,890 EUR (3.26 EUR/L). So savings can be generated, and our resources can be protected by using CJC continuously as an off-line filter. The amazing results have convinced us, and we decided to purchase two identical CJC systems for our tug boats "Bugsier 5" and "Bugsier 6"."

Further advantages:
Highest oil cleanliness classes improve reliability of the thrusters:
- less wear
- fewer breakdowns/day days
- high savings

Extended meantime between oil changes lead to high savings and protects environment and resources simultaneously:
- less new oil
- less waste oil and CO₂ *)

*) During thermal disposal of waste oil CO₂ is generated – approx. 2.6 kg CO₂ per 1 Litre.

